

# Should problematic pornography use be considered an addiction?

George Blanchard<sup>1</sup>  
Ornella Corazza<sup>2</sup>

<sup>1</sup> Hertfordshire Partnership University NHS  
Foundation Trust, UK

<sup>2</sup> University of Hertfordshire, UK

## Address for correspondence:

Ornella Corazza  
Department of Clinical and Pharmaceutical Sciences,  
University of Hertfordshire  
College Lane, Hatfield,  
Hertfordshire, AL10 9AB  
Tel.: +0044 (0) 1707 281334  
E-mail: o.corazza@herts.ac.uk

## Abstract

**Problematic use of online pornography can be viewed as a behavioural addiction. A non-systematic literature review was conducted to evaluate the evidence-base for the classification, identification and management of internet pornography addiction. There is evidence that internet pornography addiction is phenomenologically and neurophysiologically similar to drug addiction. Application of the available evidence to clinical practice is limited by a lack of consensus regarding diagnostic criteria and a lack of validated diagnostic tools. Candidate therapies include group-based and online programmes as well as pharmacological treatments. Weak evidence exists to support the use of non-pharmacological approaches, but there is no evidence for the use of pharmacological treatment despite its diffusion in society.**

**KEY WORDS:** *online pornography, addiction, Internet addiction, compulsive sex.*

## Introduction

In postmodern societies pornographic material is easily available over the internet to anyone with a personal computer or mobile phone. Although little talked-about, use of pornography is now common (particular-

ly among men) with one of the most frequently-cited epidemiological studies finding that 87% of male university students reported using pornography (1). Perhaps unsurprisingly, self-perceived “pornography addiction” is becoming more commonly encountered in psychiatric practice, with one survey suggesting that 5% of younger men report serious problems with sexual internet use (2). However it remains unclear whether problematic pornography use should be considered an addiction, and how the problem should be approached and managed in clinical practice.

The term addiction, derived from the Latin *addicere* (“to enslave”), is traditionally associated with substances which act on the central nervous system. Aspects of addiction include repetitive engagement in behaviours, persistence despite evidence of damage, loss of control, craving, physical dependence, tolerance and withdrawal (3). Internet pornography addiction does not appear in the 10<sup>th</sup> edition of the international classification of diseases (4). Although numerous behavioural addictions are recognised in the literature, only gambling disorder and internet gaming disorders are included within a diagnostic category in the 5<sup>th</sup> Diagnostic and Statistical Manual of Mental Disorders (DSM-V), and internet pornography addiction does not feature (3). However, the decision to include a non-drug addiction or behavioural addiction in the DSM-V does represent an important shift in the way we conceptualise addictions. Crucially, it validates the position that any repetitive, maladaptive pattern of behaviour could be considered an addiction, regardless of whether there is any direct stimulation of the reward centres of the central nervous system by an ingested substance.

There is a number of candidate behavioural addictions including hypersexual disorder, internet addiction, kleptomania and trichotillomania. These disorders can be seen as sharing some of the phenomenological features of drug addictions such as inability to control the behaviour, continued use despite evidence of harm, and salience. However, it is more difficult to demonstrate that these candidate addictions meet the DSM pharmacological criteria for addiction, specifically withdrawal (experience of unpleasant mental/physical symptoms upon abrupt cessation of addictive behaviour) and tolerance (reduced response following repeated stimulus). It is due to the lack of evidence for the presence of these pharmacological criteria that most behavioural addictions have not been classified as such within the DSM-V (5).

Some Authors view pornography addiction is a social construct, rather than a biomedical disorder. Clarkson and Kopaczewski argue that the concept of pornography addiction is a symptom of a wider moralistic social discourse which exists to exert social control (6). They view the concept of pornography addiction as the medicalisation of a normal behaviour which risks restricting sexual, academic and expressive freedoms. This opposition to the concept of pornography addiction highlights the importance of examining the biological evidence for the classification of problematic pornography use as an addiction.

### Neuroscientific evidence

Neuroscientific research has provided us with insights into the disturbance of neuronal functioning in the brains of addicted individuals. Nestler described all addictions as producing dysfunctional activity in the mesolimbic system of the brain (a dopaminergic pathway between the ventral tegmental area and the nucleus accumbens) (7). The mesolimbic system is the brain's natural reward pathway, which becomes activated when the individual indulges in certain behaviours which promote survival (e.g. food, sex, social interactions). The mesolimbic pathway is also activated by addictive drugs, leading to the hypothesis that there is a common pathway for all addictions, natural or chemical. Other evidence of a common pathway comes from research into a brain protein called  $\Delta$ FosB, which is over-produced in the neurones of people with drug addictions. Comparative research has shown that similar changes in the physiology of  $\Delta$ FosB take place in people with "natural" addictions such as hypersexuality and compulsive eating (8). To be considered an addiction, we would expect problematic pornography consumption to produce some neurophysiological changes in the brain, in the same way that drug addictions and other behavioural addictions do. Brand et al. used functional magnetic resonance imaging to measure activity in the ventral striatum (encompassing the nucleus accumbens) in participants whilst watching pornographic material (9). Activity in the ventral striatum was correlated with reported level of arousal and was stronger for preferred pornographic material. The level of activity in the ventral striatum was also predicted by participant scores on a validated questionnaire for internet sex addiction (the s-IATsex, discussed later in this review) with higher scores predicting higher activity. This pattern of increased activity is similar to that found in drug addiction and other behavioural addictions, supporting the idea that problematic use of internet pornography should be considered an addiction.

### Epidemiology and risk factors

There is a lack of consensus regarding the diagnostic criteria for online pornography addiction (see next

section) which leads to significant heterogeneity in epidemiological studies and difficulty in estimating true prevalence. This is illustrated by the online survey conducted by Ross et al. which found a prevalence of problematic sexual internet use between in men of between 5-12% (2-5% in women) for a sample of 1,913 individuals, depending on what cut-off was used for the self-report scale (2). It is impossible to give an accurate estimate of online pornography addiction without a consensus of diagnostic cut-offs, but other studies have given similar estimates for prevalence, and demonstrated that prevalence is higher in men than women (10, 11).

As in other behavioural addictions, there appears to be an overlap between online pornography addiction and use of addictive substances such as drugs and alcohol. Castro-Calvo et al. surveyed 312 Spanish adolescents and found that participants who smoked, drank alcohol or used drugs had a significantly higher cybersex addiction score than participants who did not smoke, drink or take drugs (12). They also conducted a factorial analysis which suggested that this effect is mediated by common factors of positive expectancies towards substance use and antisocial personality traits. The existence of these common mediating factors gives more support to the idea that problematic online pornography use should be considered an addiction.

Other risk factors have been identified. Cooper et al. have conducted a large survey of 7037 individuals (recruited online) with the aim of analysing demographic information for participants who engage in online sexual activity (OSA) (13). They found that problem users of OSA were more likely to engage in this activity to regulate their mood, and to live out unfulfilled sexual fantasies, whereas non-problematic users were more likely to use OSA as a distraction or for arousal. Kor et al. found that participants who scored highly on a rating scale designed to measure problematic pornography use also had increased rates of emotional insecurity and history of traumatic life experiences (14). These studies suggest that certain emotionally vulnerable individuals may be more at risk of internet pornography addiction.

### Assessment and diagnosis

Internet pornography addiction appears to straddle the diagnostic categories of internet addiction and hypersexual disorder. It is sometimes referred to separately as "problematic internet pornography use", "internet pornography addiction", "internet sex addiction", "problematic cybersex" or "cybersex addiction". The lack of consensus and consistency in the literature makes it difficult to combine and compare evidence on diagnosis and assessment of this disorder. Diagnostic criteria for internet addiction have been proposed by Tao et al. (15). Diagnostic criteria for hypersexual disorder have been proposed by Carnes, Goodman and Kafka (16-18). There is no evidence to

support the superior validity of one of these sets of diagnostic criteria over another. However, there is some common ground between them. They all include criteria relating to loss of control of the behaviour, and continued engagement in the behaviour despite negative consequences. Relying only on this broad diagnostic consensus will be of little use to the clinician. This points to the fact that more research is required to produce a set of diagnostic criteria that are both reliable and valid.

Specific diagnostic tools are perhaps more helpful than criteria for identifying patients with internet pornography addiction. One of the most widely-used tools is the Internet Sex Screening Test (ISST) developed by Delmonico & Miller (19). This consists of 25 yes/no items designed to assess five specific domains of sexual internet use (interest, compulsive, social vs. isolated online sexual behaviour, and online sexual spending). However, a key weakness of this tool is that it has not been validated by a clinical study. Validated tools are available that measure hypersexual behaviour in general and are not specific to online sexual behaviour and pornography use. Amongst the few available validated tools available to measure online sexual behaviour, the Short Internet Addiction Test Adapted to Online Sexual Activities (s-IATsex) is the most credible in terms of its development and structure. It has the advantage of using a Likert scale rather than binary responses (which can be reductive) and has a two-factor structure which resulted in high internal validity. The scale consists of 12 items: 6 of which relate to social functioning and craving, with the other half relating to loss of control and time spent engaging in online sexual behaviour. However, there are currently no validated cut-off scores for any diagnostic tools for online pornography addiction, including the s-IATsex. This is a key limitation of their applicability to clinical practice.

## Treatment and management

Due to the inconsistencies and lack of consensus regarding the conceptualisation of internet pornography addiction, little evidence is available to support specific treatment programmes. Orzack et al. conducted a small study of 35 participants treated with group therapy for cybersex addiction (20). The model used was integrative and included elements of motivational interviewing, psychoeducation as well as cognitive behavioural therapy (CBT). There was no change in cybersex use but quality of life and associated affective symptoms were improved. Hardy et al. have conducted a study of an online psychoeducational programme for problematic online pornography use, involving 138 participants (21). The programme was based on CBT principles, and as such focussed on identifying and managing unhelpful cognitions as well as developing strategies for mood regulation. According to self-reports from participants, this intervention led to decreased frequency of online pornography

use, decreased preoccupation with sexual thoughts as well as having a positive effect on mood.

Both of the above studies have serious limitations: they both lack any control group, meaning that the reported outcomes could be due to a placebo effect. Both studies also lack standardised outcome measures, meaning that the results are poorly generalisable. Another limitation is the small sample sizes which limits the statistical power of the studies and limits their generalisability. Overall, the evidence to support either of the treatment approaches used in these studies is weak.

There is currently no evidence to support the use of pharmacological treatments for online pornography addiction. Naltrexone is an opioid antagonist that has an established evidence base for the treatment of substance addictions. There is a growing body of evidence that naltrexone is effective in the treatment of behavioural disorders, particularly gambling disorder (22). However, specific trials of naltrexone for the treatment of online pornography addiction must be conducted before it can be recommended for use in the treatment of this disorder.

## Conclusion

Although use of internet pornography is not in itself a problem, upon reviewing the available evidence it is clear that an excessive and distressing pattern of use can emerge in some vulnerable individuals. This pattern is phenomenologically and neurophysiologically similar to drug addictions, leading some to classify it as a behavioural addiction, whereas others resist this classification. The development of specific diagnostic tools and treatment strategies for online pornography addiction has been limited by the lack of a consensus on the conceptualisation of this disorder. Future research in this area must focus on reaching such a consensus, before moving on to the further development of diagnostic tools/criteria and clinical trials.

## References

1. Carroll J, Padilla-Walker L, Nelson L, Olson C, McNamara Barry C, Madsen S. Generation XXX. *Journal of Adolescent Research*. 2008;23(1):6-30.
2. Ross M, Månsson S, Daneback K. Prevalence, Severity, and Correlates of Problematic Sexual Internet Use in Swedish Men and Women. *Archives of Sexual Behavior*. 2011;41(2):459-466.
3. *Diagnostic and statistical manual of mental disorders*. Arlington, Va: American Psychiatric Association. 2013.
4. *International classification of diseases and related health problems - 10th revision*. Geneva: World Health Organization. 1992.
5. Chamberlain S, Lochner C, Stein D, Goudriaan A, van Holst R, Zohar J, et al. Behavioural addiction - A rising tide? *European Neuropsychopharmacology*. 2016;26(5):841-855.
6. Clarkson J, Kopaczewski S. Pornography Addiction and the Medicalization of Free Speech. *Journal of Communication Inquiry*. 2013;37(2):128-148.

7. Nestler E. Is there a common molecular pathway for addiction? *Nature Neuroscience*. 2005;8(11):1445-1449.
8. Wallace D, Vialou V, Rios L, Carle-Florence T, Chakravarty S, Kumar A, et al. The influence of DeltaFosB in the nucleus accumbens on natural reward-related behavior. *The Journal of Neuroscience*. 2008;28(41):10272-10277.
9. Brand M, Snagowski J, Laier C, Maderwald S. Ventral striatum activity when watching preferred pornographic pictures is correlated with symptoms of Internet pornography addiction. *NeuroImage*. 2016;129:224-232.
10. Carnes P. Sexual Addiction and Compulsion: Recognition, Treatment, and Recovery. *CNS Spectrums*. 2000;5(10):63-74.
11. Ballester-Arnal R, Castro-Calvo J, Gil-Llario M, Giménez-García C. Relationship Status as an Influence on Cybersex Activity: Cybersex, Youth, and Steady Partner. *Journal of Sex & Marital Therapy*. 2013;40(5):444-456.
12. Castro-Calvo J, Ballester-Arnal R, Gil-Llario M, Giménez-García C. Common etiological pathways between toxic substance use, Internet and cybersex addiction: The role of expectancies and antisocial deviance proneness. *Computers in Human Behavior*. 2016;63:383-391.
13. Cooper A, Morahan-Martin J, Mathy R, Maheu M. Toward an Increased Understanding of User Demographics in Online Sexual Activities. *Journal of Sex & Marital Therapy*. 2002;28(2):105-129.
14. Kor A, Zilcha-Mano S, Fogel Y, Mikulincer M, Reid R, Potenza M. Psychometric development of the Problematic Pornography Use Scale. *Addictive Behaviors*. 2014;39(5):861-868.
15. Tao R, Huang X, Wang J, Zhang H, Zhang Y, Li M. Proposed diagnostic criteria for internet addiction. *Addiction*. 2010;105(3):556-564.
16. Carnes P. *Don't call it love*. New York: Bantam. 1992.
17. Goodman A. *Sexual addiction: The new frontier*. The Counselor. 1998;16:17-26.
18. Kafka M. Hypersexual Disorder: A Proposed Diagnosis for DSM-V. *Archives of Sexual Behavior*. 2010;39(2):377-400.
19. Delmonico D, Miller J. The Internet Sex Screening Test: A comparison of sexual compulsives versus non-sexual compulsives. *Sexual and Relationship Therapy*. 2003;18(3):261-276.
20. Orzack M, Voluse A, Wolf D, Hennen J. An Ongoing Study of Group Treatment for Men Involved in Problematic Internet-Enabled Sexual Behavior. *CyberPsychology & Behavior*. 2006;9(3):348-360.
21. Hardy S, Ruchty J, Hull T, Hyde R. A Preliminary Study of an Online Psychoeducational Program for Hypersexuality. *Sexual Addiction & Compulsivity*. 2010;17(4):247-269.
22. Mouaffak F, Leite C, Hamzaoui S, Benyamina A, Laqueille X, Kebir O. Naltrexone in the Treatment of Broadly Defined Behavioral Addictions: A Review and Meta-Analysis of Randomized Controlled Trials. *European Addiction Research*. 2017;23(4):204-210.